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Flora and Fauna of Beers of District Faridkot, Punjab, India

Varinder Sharma, Rai Singh and Radhika Sharma

Abstract
Present study has been conducted in Faridkot district for documentation of floral and faunal diversity from last ten years (2012 to 2022). A total of 181 angiosperm species member of 155 genera and 56 families were documented from the region. Two gymnosperm and one pteridophyta was also recorded. In fauna, 56 species recoded in which birds are dominant with 44 species followed by mammals (5 species), insects (3 species), reptiles (3 species) and butterflies (2 species). This study will be helpful for researchers, botanists, zoologists, ornithologists etc. as updated information about the floral and faunal diversity of the region.

Keywords: Inventory, plants, animals, diversity, morphology, taxonomy

1. Introduction

We all are surrounded by flora and fauna which consists of plants such as algae, bryophytes, pteridophytes, gymnosperms, angiosperms etc. and animals such as birds, insects, animals etc. These all are commonly called biological diversity or biodiversity. They fulfil human requirements in the form of food, fodder, shelter, medicine etc. Plants and animals are also used in many cultural and religious functions in typical regions. In other words, survival of human beings is impossible without flora and fauna.

Some areas are rich in biological diversity. These regions are commonly called hot spots of biodiversity. In India, Himalayan regions are rich in plant as well as animal diversity. It consists of important medicinal plants, wonderful insects, butterflies, animals etc. Tribal people in this area are totally dependent on traditional medicines. Traditional medicines are cost effective and easily available. Chemical medicines have large number of side effects but herbal medicines have no any side effects.

Biodiversity provides a stability to ecosystem. Because plants and animals are dependent on each other. They have so many mutual relationships. We can easily see in the nature; the nests of birds on plants, eggs of insects in fruits of banyan tree, pollination etc. These relationships are designed by nature but interrupted by human beings. Due to disturbance in these relations by humans, some species have become endangered, threatened or even extinct in a particular area.

Punjab is an agricultural state of the Country. It needs more agricultural land for production of cereal crops such as wheat, rice, maize etc. Therefore, jungles or forests are rapidly decreases. Forest area in the state of Punjab is very small. But this area is being reduced by human activities. Destruction of forests is directly affected the biodiversity due to habitat loss of organisms. Therefore, conservation strategies for biodiversity is the need of the hour.

Industrialization is also a major cause of loss of flora and fauna. Smokes and waste materials from the industry is harmful for biodiversity. It pollutes the air, water and land. Environmental pollution is also dangerous for biodiversity and responsible for extinction of some plants and animal species. Environmental pollution is also harmful for human health. But human, ignore this major issues. So, it is the alarming time for humans to control the pollution and save the biodiversity and environment for future generations. Sustainable uses of natural resources is the need of the hour.

Faridkot district is situated in northern part of the state of Punjab, India. It is transitional zone between Indian and Pakistan. Some patches are covered by forests in the district which is locally called “Bir” or “Beer”. There are three birs *viz*. Ghugiana, Chahal and Sikhanwala found in the district. Each bir has its own history and importance.

These birs also vary from each other in biodiversity. Keeping this in view, present study was planned for documentation and inventorization of plant as well as animal diversity in this region. It will be useful for the biologists as an additional and updated information about floral and faunal diversity of this area.

Materials and Methods

Study area

Faridkot is situated in the South- Western part of Punjab state, India, which falls in the Malwa region between 29°-54' to 34°-54' North latitude and 74°-15' to 75°-25' East longitude. There are three beers or miniforests namely *viz*. Ghugiana, Chahal and Sikhanwala. Among these three beers, Bir Sikhanwala is the biodiversity hotspot.

Field Survey

This documentation has been compiled from 2012 to 2022. Regular field trips were conducted for documentation of plant species, birds, animals and butterflies throughout the year in every season.

Photography

Photographs of study area, plants, birds, butterflies, insects, animals etc. were also clicked using mobile camara/Camara.

Identification

Morphological features of plant species such as leaf, stem, flower, stamens, stigma, fruit, seeds *etc*. were examined for identification. Available literature was also concerned for authentication of species such as Stewart, 1869[16]; Hooker, 1872-1897 [4]; Collet, 1902 [3]; Bamber, 1916 [1]; Nair, 1978 [6]; Singh and Singh, 2019 [14]; Singh and Singh, 2020 [15]; Cho *et al.*, 2019 [2]; Sharma, 2021 [12]; Singh and Sidhu, 2022 [13]). Online websites Such as efloraofindia, the plant list and world floraonline were also used. Similarly, animals were also identified using available literature such as Pratihar and Chakraborty, 1996 [8]; Raval *et al*., 2022 [9]; Saikia and Meetei, 2022 [11]. Online websites related to faunal diversity of different regions of the world were also consulted.

Results and Discussion

A total of 181 angiosperm species belonging to 155 genera and 56 families were documented from the three birs of the district Faridkot, Punjab (Table.1.) (Fig.1.). Out of 55 families, Fabaceae was dominant family with 19 species followed by Poaceae (18), Asteraceaer (16), Malvaceae (9), Amaranthaceae, Euphorbiaceae and Solanaceae (8 each), Chenopodiaceae (6), Boraginaceae, Convolvulaceae, Moraceaer (5 each), Aizoacae, Apocynaceae, Brassicaceae, Cucurbitaceae, Meliaceae, Myrtacaeae, Nyctaginaceae, Polygonaceae and Verbenaceae (3 each) and Acanthaceae, Arecaceae, Asclepiadaceae, Menispermeaceae, Rhamnaceae, Rubiaceae, Salvadoraceae, Scrophulariaceae and Tiliaceae (2 each). Rest of families are monotypic represented with one species each (Table.2.). Out of 155 genera, *Ficus* was dominant with 4 species followed by *Alternanthera*, *Heliotropium*, *Chenopodium*, *Euphorbia*, *Ipomoea*, and *Sida* (3 each) and *Boerhavia*, *Convolvulus*, *Phyllanthus*, *Rumex*, *Saccharum* and *salvadora* represented with 2 species each. *Prosopis juliflora*, *Parthinium hysterophorus*, *Lantana camara*, *Calotropis process*, *Sccharum munja* and *Sccharum sponteneum* were very dominant in three birs whereas *Tecomella undulate*, *Prosopis cineraria* and *Maerua oblongifolia* were rare. Patel *et al.* (2011) [7] enlisted the 988 species of higher plants belonging to 118 families of Kachchh, Gujarat, India in which 805 were dicots and 183 were monocots. They were also suggested 21 plant species as threatened. Angiosperm flora of Modasa Reserves, India was studied by Jangid (2011) [5] and documented 644 plant in which 531 were dicots and 113 were monocots. Out of 644 species, 448 were common, 109 were abundant, 67 were rare and 20 were very rare.

During present investigation, two gymnosperm and one pteridophyte was also recorded from the study area. Both male and female plants of *Ephedra foliata* were seen in bir sikhan wala whereas male plants were recorded in Bir Chahal. *Thuja* is cultivated by local peoples in all the birs. *Marselia* was documented in Bir Ghugeana and Bir Sikhanwala on the side of water channels and pond (Table.1.).

A total of 56 species were identified during the field visits, with birds accounting for the majority (44 species), followed by mammals (5 species), insects (3 species), reptiles (3 species) and butterflies (2 species) (Table. 3. and 4) (Fig.2). The dominance of birds may be due to the fulfilment of their needs of food and reproduction. Faunal diversity of particular areas are also studied time to time by many scientists. Roy *et al.* (2013) [10] studied the avifauna of three regions of North Bengal, India. They recoded 114 birds belonging to 42 families in which Black-naped oriole (*Oriolous chinensis*) and Marshall's iora (*Aegithina nigrolutea*) reported first time from the region. Recently, Saikia and Meetei (2022) [11] studied the three mammalian orders Chirotera, Rodentaia and Eulipotyphyla from Manipur, India, They identified 28 species on the basis of morphological characters.

Fig 1: (1-30.) 1- *Abutilon indicum*; 2- *Aerva javanica*; 3- *Ageratum houstonianum*; 4- *Alternanthera philoxeroides*; 5- *Alternanthera sessilis*; 6- *Anagallis arvensis*; 7- *Anisomelos indica*; 8- *Argemone maxicana*; 9- *Boerhavia diffusa*; 10- *Cannabis sativa*; 11- *Calotropis procera*; 12- *Commelina benghalensis*; 13- *Citrullus colocynthis*; 14- *Cenchrus ciliaris*; 15- *Cirsium arvense*; 16- *Capparis decidua*; 17- *Chenopodium album*; 18- *Chenopodium murale*; 19- *Clerodendrum phlomidis*; 20- *Convolvulus arvensis*; 21- *Convolvulus arvensis*; 22- *Croton bonplandianus*; 23- *Dactyloctenium aegyptium*; 24- *Datura innoxia*; 25- *Desmostachya bipinnata*; 26- *Dicliptera paniculata*; 27- *Digera muricata*; 28- *Eclipta prostrate*; 29- *Eichhornia crassipes*; 30- *Ehretia laevins* ((© Varinder Sharma and Rai Singh).

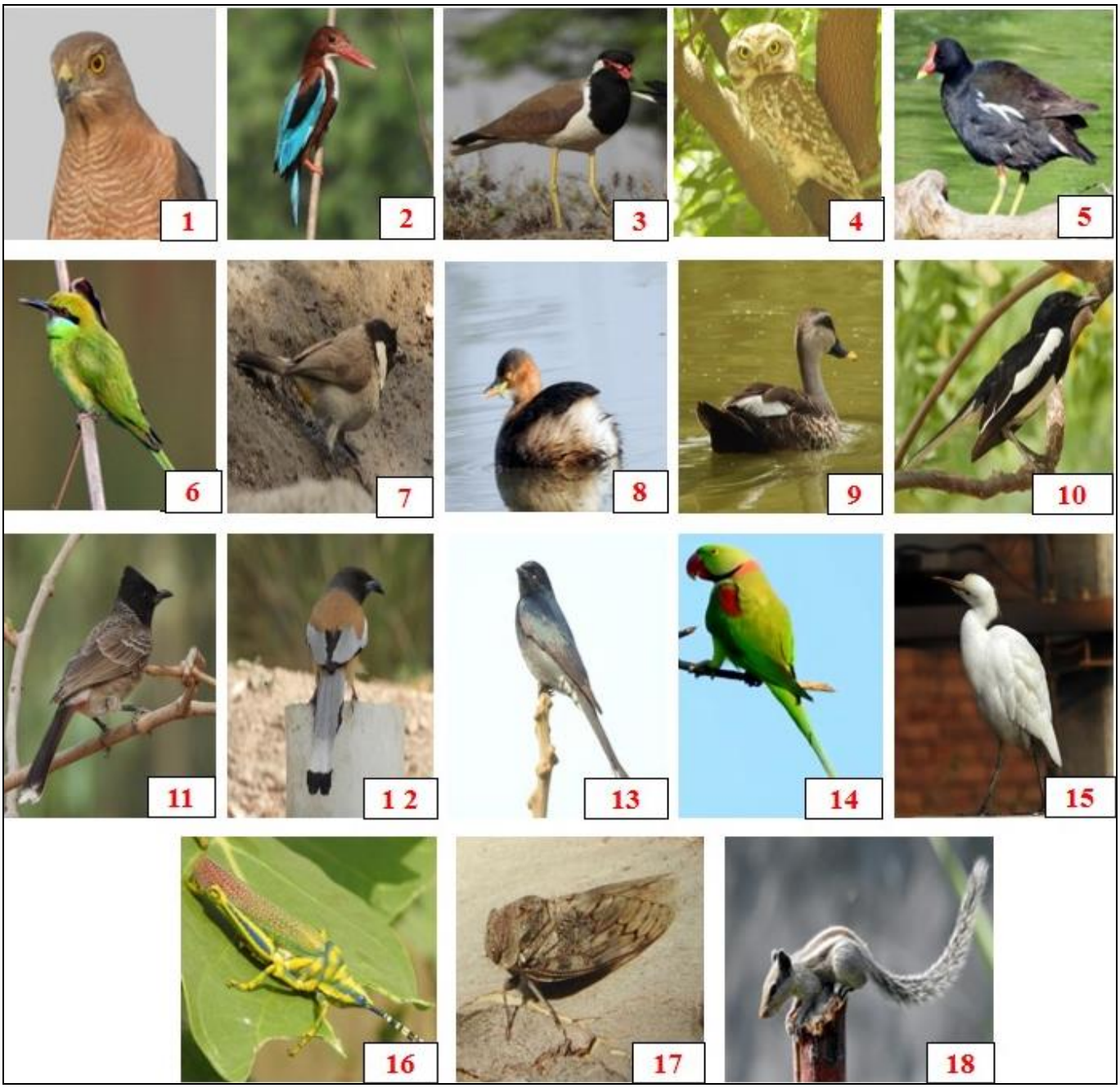

Fig 2: (1-17) faunal diversity. 1- *Accipiter badius*; 2-*Halcyon smyrnensis*; 3- *Vanellus indicus*; 4- *Athene brama*; 5- *Amaurornis phoenicurus*; 6- *Merops orientalis*; 7- *Pycnonotus leucotis*; 8- *Tachybaptus ruficollis*; 9- *Anas poecilorhyncha*; 10- *Copsychus fulicatus*; 11- *Pycnonotus cafer*; 12- *Dendrocitta vagabunda*; 13- *Dicrurus leucophaeus*; 14- *Psittacula krameri*; 15- *Babulcus ibis*; 16- *Dactylotum bicolor*; 17- *Cicada sp*; 18- *Funambulus palmarum* ((© Varinder Sharma).

Table 1: Flora of Birs

S. No.	Botanical Name	Family	Source	Habit	Life form	Local Name	Occurrence of plants in Birs's		
							A	B	C
			Angiosperms						
1.	*Abutilon indicum* (L.) Sweet	Malvaceae	W	S	P	Kangi	+	+	+
2.	*Abutilon pannosum* Schlecht	Malvaceae	W	S	P	Kangi	-	-	+
3.	*Acacia nilotica* (L.) Willd. Ex Delile	Fabaceae	W	T	P	Kikar	+	+	+
4.	*Achyranthes aspera* L.	Amaranthaceae	W	H	P	Puthkanda	+	+	+
5.	*Aerva javanica* (Burm. f.) Schult	Amaranthaceae	W	H	A		-	+	+
6.	*Ageratum houstonianum* Mill	Asteraceae	W	H	A	Nilam	+	+	+
7.	*Albizia lebbeck* (L.) Benth.	Fabaceae	C	T	P	Shreen	-	-	+
8.	*Alternanthera philoxeroides* (Mart.) Griseb.	Amaranthaceae	W	H	A		-	+	+
9.	*Alternanthera sessilis* (L.) R. Br. ex DC.	Amaranthaceae	W	H	A		-	-	+
10.	*Amaranthus viridis* L.	Amaranthaceae	W	H	A	Chaulai	+	+	+
11.	*Anagallis arvensis* L.	Primulaceae	W	H	A	Bili buti	-	-	+
12.	*Anisomeles indica* (L.) Kuntze	Lamiaceae	W	S	P		+	+	+
13.	*Argemone maxicana* L.	Papaveraceae	W	H	A	Satyanashi	+	+	+
14.	*Artemisia scoparia* Maxim.	Asteraceae	W	H	A		+	-	+
15.	*Asphodelus tenuifolius* Cav.	Liliaceae	W	H	A	Bhukla	+	-	+
16.	*Atriplex crassifolia* Ledeb.	Chenopodiaceae	W	S	A		+	+	+

17.	*Avena fatua* L.	Poaceae	W	H	A	Jungli javi	+	-	+
18.	*Azadirachta indica* A. Juss.	Meliaceae	C	T	P	Nim	+	+	+
19.	*Bauhinia purpurea* L.	Fabaceae	C	T	P	Kachnar	-	-	+
20.	*Bidens pilosa* L.	Asteraceae	W	H	A		-	-	+
21.	*Blumea mollis* (D. Don) Merr.	Asteraceae	W	H	A		+	-	+
22.	*Boerhavia chinensis* (L.) Rottb.	Nyctaginaceae	W	H	A		-	-	+
23.	*Boerhavia diffusa* L.	Nyctaginaceae	W	H	P		+	+	+
24.	*Bougainvillea glabra* Choisy	Nyctaginaceae	V	S	P	Gul e kagzi	+	+	+
25.	*Brachiaria ramosa* (L.) Stapf	Poaceae	W	H	A		+	-	+
26.	*Calotropis procera* (Aiton) Dryand	Asclepiadaceae	W	S	P	Ak	+	+	+
27.	*Cannabis sativa* L.	Cannabaceae	W	H	P	Bhang	+	+	+
28.	*Capparis decidua* Edgew	Capparaceae	W	T	P	Karir	+	+	+
29.	*Caryota urens* L.	Arecaceae	C	T	P		-	-	+
30.	*Cassia fistula* L.	Fabaceae	C	T	P	Amaltas	+	+	+
31.	*Catharanthus roseus* (L.) G. Don	Apocynaceae	C	H	P	Sdhabahar	+	+	+
32.	*Cenchrus ciliaris* L.	Poaceae	W	H	A	Kutta ghas	+	+	+
33.	*Centaurium pulchellum* (Sw.) Druce	Gentianaceae	W	H	A		-	-	+
34.	*Chenopodium album* L.	Chenopodioideae	W	H	A	Bathu	+	+	+
35.	*Chenopodium ambrosioides* L.	Chenopodiaceae	W	H	P	Karbathu	-	-	+
36.	*Chenopodium murale* L.	Chenopodioideae	W	H	A	Karbathu	+	+	+
37.	*Cirsium arvense* (L.) Scop	Asteraceae	W	H	A		+	+	+
38.	*Citrullus colocynthis* (L.) Schrad	Cucurbitaceae	W	H	A	Tumma	+	+	+
39.	*Cleome viscosa* L.	Cleomaceae	W	H	A		+	+	+
40.	*Clerodendrum phlomidis* L.	Verbenaceae	W	S	P	Arni	+	+	+
41.	*Cocculus hirsutus* (L.) W. Theob.	Menispermaceae	W	S	P	Jaljamni	-	+	+
42.	*Commelina benghalensis* L.	Commelinaceae	W	H	A		+	-	+
43.	*Convolvulus arvensis* L.	Convolvulaceae	W	H	A	Hiran khuri	+	+	+
44.	*Convolvulus prostratus* Forrsk.	Convolvulaceae	W	H	A	Shankh pushpi	+	+	+
45.	*Cordia myxa* L.	Boraginaceae	W	T	P	Lasuda	+	+	+
46.	*Coronopus didymus* (L.) Sm.	Brassicaceae	W	H	A	Jungli halon	+	+	+
47.	*Crinum asiaticum* L.	Amaryllidaceae	C	H	P	Lily	+	+	+
48.	*Croton bonplandianus* Baill.	Euphorbiaceae	W	H	A		+	+	+
49.	*Cynodon dactylon* (L.) Pers.	Poaceae	W	H	P	Khabal	+	+	+
50.	*Cyperus rotundus* L.	Cyperaceae	W	H	P	Murk	+	+	+
51.	*Dactyloctenium aegyptium* (L.) Willd.	Poaceae	W	H	A	Madhana	+	+	+
52.	*Dalbergia sisso* Roxb. ex DC.	Fabaceae	W+C	T	P	Tahli	+	+	+
53.	*Datura innoxia* Mill.	Solanaceae	W	S	A	Datura	+	+	+
54.	*Desmodium triflorum* (L.) DC.	Fabaceae	W	H	A		+	-	+
55.	*Desmostachya bipinnata* (L.) Stapf	Poaceae	W	H	A		+	+	+
56.	*Dichanthium annulatum* Stapf	Poaceae	W	H	A		+	+	+
57.	*Dicliptera paniculata* (Forssk.) I.Darbysh.	Acanthaceae	W	H	A		+	+	+
58.	*Digera muricata* (L.) Mart.	Amaranthaceae	W	H	A	Tandal	+	+	+
59.	*Digitaria sanguinalis* (L.) Scop.	Poaceae	W	H	A		+	+	+
60.	*Echinochloa crus-galli* (L.) P.Beauv.	Poaceae	W	H	A	Swank	+	+	+
61.	*Eclipta prostrata* (L.) L.	Asteraceae	W	H	A	Bhringraj	+	-	+
62.	*Ehretia laevins* Sieber ex DC.	Boraginaceae	W	S	P		-	-	+
63.	*Eichhornia crassipes* (Mart.) Solms	Pontederiaceae	W	H	P		-	-	+
64.	*Emblica officinalis* Gaertn.	Euphorbiaceae	C	T	P	Amla	+	+	+
65.	*Eragrostis tenella* (L.) P. Beauv	Poaceae	W	H	A	Chirian da dana	+	+	+
66.	*Erigeron bonariensis* L.	Asteraceae	W	H	A		+	+	+
67.	*Eucalyptus sp*	Myrtaceae	C	T	P	Safeda	+	+	+
68.	*Euphorbia heyneana* Spreng.	Euphorbiaceae	W	H	A		+	+	+
69.	*Euphorbia hirta* L.	Euphorbiaceae	W	H	A		+	+	+
70.	*Euphorbia prostrata* Aiton	Euphorbiaceae	W	H	A		+	+	+
71.	*Farsetia hamiltonii* Royle.	Brassicaceae	W	H	A		+	+	+
72.	*Ficus benghalensis* L.	Moraceae	W+C	T	P	Bohr	+	+	+
73.	*Ficus benjamina* L.	Moraceae	C	S	P	Pilkan	+	+	+
74.	*Ficus palmata* Forssk.	Moraceae	W	T	P	Fakwara	-	-	+
75.	*Ficus religiosa* L.	Moraceae	W+C	T	P	Pipal	+	+	+
76.	*Fumaria indica* (Hausskn.) Pugsley	Fumariaceae	W	H	A	Pitpapra	+	+	+
77.	*Gnaphalium pensylvanicum* Willd.	Asteraceae	W	H	A		+	+	+
78.	*Gomphrena celosioides* Mart.	Amaranthaceae	W	H	A		+	+	+
79.	*Grewia tenax* Forssk.	Tiliaceae	W	S	P		+	-	+
80.	*Hamelia patens* Jacq.	Rubiaceae	C	S	P		-	+	+
81.	*Heliotropium curassavicum* L.	Boraginaceae	W	H	P	Hathi sundi	-	-	+
82.	*Heliotropium ellipticum* Ledeb.	Boraginaceae	W	H	A	Hathi sundi	+	-	+
83.	*Heliotropium strigosum* Willd	Boraginaceae	W	H	A	Hathi sundi	+	-	+
84.	*Hibiscus vitifolius* Mill.	Malvaceae	W	H	A		-	-	+
85.	*Indigofera linnaei* Ali	Fabaceae	W	H	A		+	-	+
86.	*Ipomoea nil* (L.) Roth	Convolvulaceae	W	H	A		-	-	+
87.	*Ipomoea pes-tigridis* L.	Convolvulaceae	W	H	A		+	+	+
88.	*Ipomoea triloba L.*	Convolvulaceae	W	H	A		+	+	+
89.	*Kochia indica* Wight	Chenopodiaceae	W	S	P		+	+	
90.	*Lantana camara* L.	Verbenaceae	W	H	P		+	+	+
91.	*Lathyrus aphaca* L	Fabaceae	W	H	A	Matri	-	-	+
92.	*Launaea nudicaulis* (L.) Hook.f.	Asteraceae	W	H	P	Bhaghtal	+	+	+
93.	*Lemna perpusilla* Torr.	Lemnaceae	W	H	A		-	-	+
94.	*Leucaena leucocephala* (Lam.) de Wit.	Fabaceae	W	T	P	Subabul	+	+	+

95.	*Livistona chinensis* R. Br.	Arecaceae	C	T	P	Fan palm	-	+	+
96.	*Maerua oblongifolia* A. Rich.	Capparaceae	W	S	P		-	-	+
97.	*Malva parviflora* L.	Malvaceae	W	H	A	Mallow	+	+	+
98.	*Malvastrum coromandelianum* (Linn) Garcke	Malvaceae	W	H	A		+	+	+
99.	*Mangifera indica* L.	Anacardiaceae	C	T	P	Amb	+	-	+
100.	*Mazus pumilus* (Burm.f.) Steenis	Scrophulariaceae	W	H	A		+	-	+
101.	*Medicago polymorpha* L.	Fabaceae	W	H	A	Maina	+	+	+
102.	*Melia azedarach* L.	Meliaceae	C	T	P	Dharek	+	+	+
103.	*Melilotus indicus* (L.) All.	Fabaceae	W	H	A	Senji	+	+	+
104.	*Mollugo nudicaulis* Lam.	Aizoaceae	W	H	A		+	-	+
105.	*Moringa oleifera* Lam	Moringaceae	C	T	P	Sawanjna	+	-	+
106.	*Morus nigra* L.	Moraceae	C	T	P	Shehtoot	+	+	+
107.	*Mukia maderaspatana* (L.) M.Roem.	Cucurbitaceae	W	H	A		+	+	++
108.	*Murraya paniculata* Kaneh.	Rutaceae	C	S	P	Kamini	-	-	+
109.	*Neolamackia cadamba* (Roxb.) Bosser	Rubiaceae	C	T	P	Kadamb	-	-	+
110.	*Nerium indicum* Mill.	Apocynaceae	C	S	P	Kaner	-	+	+
111.	*Nicotiana plumbaginifolia* Viv.	Solanaceae	W	H	A	Jungli tambacu	+	-	+
112.	*Oxalis corniculata* L.	Oxalidaceae	W	H	P		+	+	+
113.	*Parthenium hysterophorus* L.	Asteraceae	W	H	P	Gajar Buti	+	+	+
114.	*Paspalum distichum* L.	Poaceae	W	H	A		-	-	+
115.	*Pedalium murex* L.	Pedaliaceae	W	H	A	Bada Gokhru	-	-	+
116.	*Pergularia daemia* (Forssk) Chiov	Asclepiadaceae	W	H	P		-	-	+
117.	*Phalaris minor* Retz.	Poaceae	W	H	A	Gulli danda	+	-	+
118.	*Phyla nodiflora* (L.) Greene	Verbenaceae	W	H	A		+	+	+
119.	*Phyllanthus amarus* Schumach. & Thonn.	Euphorbiaceae	W	H	A	Hazardani	+	+	+
120.	*Phyllanthus fraternus* G. L. Webster	Euphorbiaceae	W	H	A	Hazardani	+	+	+
121.	*Physalis angulata* L.	Solanaceae	W	H	A	Jungli rasbhari	+	+	+
122.	*Poa annua* L.	Poaceae	W	H	A		+	-	+
123.	*Polyalthia longifera* (Sonn.) Thwaites	Annonaceae	C	T	P	Ashoka	-	-	+
124.	*Polygonum plebeium* R. Br.	Polygonaceae	W	H	A		+	-	+
125.	*Polypogon monspeliensis* (L.) Desf	Poaceae	W	H	A	Lumbad puchha	+	+	+
126.	*Pongamia pinnata* (L.) Pierre	Fabaceae	C	T	P	Sukhchain	+	+	+
127.	*Portulaca oleracea* L.	Portulacaceae	W	H	A	Kulfa	+	+	+
128.	*Prosopis cineraria* (L.) Druce	Fabaceae	W	T	P	Jand	+	+	+
129.	*Prosopis juliflora* (Sw.) DC.	Fabaceae	W	T	P	Pahari kikar	+	+	+
130.	*Psidium guajava* L.	Myrtaceae	C	T	P	Amrood	+	+	+
131.	*Pupalia lappacea* (Linn.) Juss.	Amaranthaceae	W	H	A		+	-	+
132.	*Putranjiva roxburghii* Wall.	Putranjivaceae	V	T	P	Putranjiva	-	-	+
133.	*Ranunculus sceleratus* L.	Ranunculaceae	W	H	A	Jaldhania	-	-	+
134.	*Rhynchosia minima* (L.) DC.	Fabaceae	W	H	A		+	+	+
135.	*Ricinus communis* L.	Euphorbiaceae	W	S	P	Arind	+	+	+
136.	*Ruellia simplex* C. Wright	Acanthaceae	C	H	P	Bukhar jad	+	+	+
137.	*Rumex dentatus* L.	Polygonaceae	W	H	A	Jungli palak	+	+	+
138.	*Rumex spinosus* L.	Polygonaceae	W	H	A	Kandiali	+	+	+
139.	*Saccharum munja* Roxb.	Poaceae	W	S	P	Kanna	+	+	+
140.	*Saccharum spontaneum* L.	Poaceae	W	S	P	Kani	+	+	+
141.	*Salvadora oleoides* Decne	Salvadoraceae	W	T	P	Van	+	+	+
142.	*Salvadora persica* L.	Salvadoraceae	W	T	P	Van	-	+	+
143.	*Senna occidentalis* (L.) Link.	Fabaceae	W	S	A	Kasoundi	+	+	+
144.	*Sesbania bispinosa* (Jacq.) W. Wight	Fabaceae	W	S	A	Janter	+	+	+
145.	*Setaria verticillata* (Linn.) P. Beauv.	Poaceae	W	H	A		+	+	+
146.	*Sida acuta* Burm.f.	Malvaceae	W	S	A	Bla	+	+	+
147.	*Sida cordata* (Burm.f.) Borss.Waalk	Malvaceae	W	H	A	Bla	+	+	+
148.	*Sida cordifolia* L.	Malvaceae	W	S	A	Bla	+	+	+
149.	*Sisymbrium irio* L.	Brassicaceae	W	H	A	Jungli saron	+	+	+
150.	*Solanum americanum* Mill.	Solanaceae	W	H	A	Makoe	+	+	+
151.	*Solanum nigrum* L.	Solanaceae	W	H	A	Makoe	+	+	+
152.	*Solanum villosum* Mill.	Solanaceae	W	H	A	Makoe	+	-	+
153.	*Solanum virginianum* L.	Solanaceae	W	H	A	Chamak namoli	+	+	+
154.	*Sonchus oleraceous* Wall	Asteraceae	W	H	A	Dhoodhi	+	+	+
155.	*Sorghum halepense* (L.) Pers.	Poaceae	W	H	A		+	+	+
156.	*Spergula arvensis* L.	Caryophyllaceae	W	H	A	Jungli dhania	+	+	+
157.	*Spirodela polyrrhiza* (L.) Schleid	Araceae				Hanspadi	-	-	+
158.	*Stellaria media* (L.) Vill.	Caryophyllaceae	W	H	A	Buchbucha	+	+	+
159.	*Suaeda maritima* (L.) Dumort.	Chenopodiaceae	W	H	A		+	+	+
160.	*Syzygium cumini* (L.) Skeels	Myrtaceae	C	T	P	Jamun	+	+	+
161.	*Tabernaemontana divaricata* (L.) R.Br. ex roem. & Schult	Apocynaceae	C	S	P	Kali	+	+	+
162.	*Tagetes erecta* L.	Asteraceae	C	H	A	Genda	-	+	+
163.	*Tecomella undulata* Seem.	Bignoniaceae	W+C	T	P	Rahuda	-	+	+
164.	*Tephrosia purpurea* (L.) Pers.	Fabaceae	W	H	A		+	+	+
165.	*Tinospora cordifolia* (Willd.) Miers ex Hook.f. & Thomson	Menispermaceae	W	S	P	Gloe	+	+	+
166.	*Toona sinensis* (Juss.) M. Roem	Meliaceae	C	T	P		-	-	-
167.	*Trianthema portulacastrum* L.	Aizoaceae	W	H	A	Itsit	+	+	+
168.	*Tribulus terrestris* L.	Zygophyllaceae	W	H	A	Bhakhra	+	+	+
169.	*Trichosanthus angulata* Lam.	Cucurbitaceae	W	H	P	Parmal	+	+	+
170.	*Tridax procumbens* (L.) L.	Asteraceae	W	H	A		+	+	+
171.	*Triumfetta rhomboidea* Jacq	Tiliaceae	W	S	A		+	+	+
172.	*Urena lobata* L.	Malvaceae	W	H	P		+	+	+

173.	*Verbesina encelioides* (Cav.) Benth. & Hook.f. ex A. Gray	Asteraceae	W	H	A		+	+	+
174.	*Vernonia cinerea* (L.) Less	Asteraceae	W	H	A	Sehdevi	+	+	+
175.	*Veronica didyma* Ten.	Scrophulariaceae	W	H	A	Gajargulla	+	+	+
176.	*Vicia sativa* L.	Fabaceae	W	H	A	Rari	+	+	+
177.	*Withania somnifera* (L.) Dunal	Solanaceae	W	S	P	Aksin	+	+	+
178.	*Xanthium strumarium* L.	Asteraceae	W	S	P	Gut patna	+	+	+
179.	*Zaleya pentandra* (L.) C. Jeffrey	Aizoaceae	W	H	A		+	+	+
180.	*Ziziphus jujube* Mill.	Rhamnaceae	W	T	P	Beri	+	+	+
181.	*Ziziphus nummularia* (Burm. f.) Wight & Arn.	Rhamnaceae	W	S	P	Mlah	+	+	+
Gymnosperms									
1	*Ephedra foliata* Boiss ex C.A. Mey	Ephedraceae	W	S	P		-	-	+
2	*Thuja occidentalis* L.	Cupressaceae	C	S	P		-	+	+
Pteridophyta									
1	*Marselia quadrifolia* L.	Marsileaceae	W	H	P		+	-	+

H= Herbs; S= Shrubs; T= trees; A= Annual; P= Perennial. A= Bir Ghugiana ; B= Bir Chahal ; C= Bir Sikhanwala

Table 2: List of number of floral families with genera and species

S. No.	Family	Genera	Species
1.	Acanthaceae	2	2
2.	Aizoaceae	3	3
3.	Amaranthaceae	7	8
4.	Amaryllidaceae	1	1
5.	Annonaceae	1	1
6.	Annonaceae	1	1
7.	Apocynaceae	3	3
8.	Araceae	1	1
9.	Arecaceae	2	2
10.	Asclepiadaceae	2	2
11.	Asteraceae	16	16
12.	Bignoniaceae	1	1
13.	Boraginaceae	5	5
14.	Brassicaceae	3	3
15.	Cannabaceae	1	1
16.	Capparaceae	2	2
17.	Caryophyllaceae	2	2
18.	Chenopodioideae	4	6
19.	Cleomaceae	1	1
20.	Commelinaceae	1	1
21.	Convolvulaceae	2	5
22.	Cucurbitaceae	3	3
23.	Cyperaceae	1	1
24.	Euphorbiaceae	5	8
25.	Fabaceae	18	19
26.	Fumariaceae	1	1
27.	Gentianaceae	1	1
28.	Lamiaceae	1	1
29.	Lemnaceae	1	1
30.	Liliaceae	1	1
31.	Malvaceae	6	9
32.	Meliaceae	3	3
33.	Menispermaceae	2	2
34.	Moraceae	2	5
35.	Moringaceae	1	1
36.	Myrtaceae	3	3
37.	Nyctaginaceae	2	3
38.	Oxalidaceae	1	1
39.	Papaveraceae	1	1
40.	Pedaliaceae	1	1
41.	Poaceae	17	18
42.	Polygonaceae	2	3
43.	Pontederiaceae	1	1
44.	Portulacaceae	1	1
45.	Primulaceae	1	1
46.	Putranjivaceae	1	1
47.	Ranunculaceae	1	1
48.	Rhamnaceae	1	2
49.	Rubiaceae	2	2
50.	Rutaceae	1	1
51.	Salvadoraceae	1	2
52.	Scrophulariaceae	2	2

53.	Solanaceae	4	8
54.	Tiliaceae	1	2
55.	Verbenaceae	3	3
56.	Zygophyllaceae	1	1
Total		155	181

Table 3: Fauna of Birs of Faridkot

S. No.	Zoological Name	Family	Local Name	Category	Occurrence of fauna in Birs		
					A	B	C
1.	*Accipiter badius* (Gmelin, JF 1788)	Accipitridae	Indian Shikra	B	+	+	+
2.	*Amaurornis phoenicurus* (Pennant, 1769)	Rallidae	Indian White Breasted Water Hen	B	-	-	+
3.	*Anas poecilorhyncha* J.R. (Forster, 1781)	Anatidae	Spot-Billed Duck	B	-	-	+
4.	*Apis dorsata* (Fabricius, 1793)	Apidae	Honey Bee	I	+	+	+
5.	*Ardea alba* (Linnaeus, 1758)	Ardeidae	Great Egret	B	-	-	+
6.	*Ardea cinerea* Linnaeus, 1758	Ardeidae	Grey Heron	B	-	-	+
7.	*Ardea intermedia* Wagler, 1829	Ardeidae	Intermediate egret	B	+	-	+
8.	*Ardea purpurea manilensis* Meyen, 1834	Ardeidae	Purple Heron	B	-	-	+
9.	*Ardeola grayii* (Sykes, 1832).	Ardeidae	Indian Pond Heron	B	-	-	+
10.	*Ardeola grayii* (Sykes, 1832).	Leiothrichidae	Jungle Babbler	B	+	+	+
11.	*Athene brama* (Temminck, 1821).	Strigidae	Spotted Owlet, Kochri	B	+	+	+
12.	*Bubulcus ibis* (Linnaeus, 1758).	Ardeidae	Cattle Egret	B	+	+	+
13.	*Boselaphus tragocamelus* (Pallas, 1766).	Bovidae	Rohj	M	+	+	+
14.	*Calotes versicolor* (Daudin, 1802).	Agamidae	Indian garden lizard	R	+	+	+
15.	*Canis aureus indicus* (Hodgson, 1833)	Canidae	Indian jackal	M	+	+	+
16.	*Centropus sinensis* (Stephens, 1815).	Cuculidae	Common Crow Pheasant or Coucal	B	-	-	+
17.	*Cicada* sp	Cicadidae	Beenda	I	+	+	+
18.	*Columba livia* (J.F. Gmelin, 1789)	Columbidae	Rock Dove or Blue Rock Pigeon	B	-	-	+
19.	*Copsychus fulivatus* (Linnaeus, 1766)	Muscicapidae	Oriental magpie-robin male	B	+	-	+
20.	*Dactylotum bicolor (*Chaepentier, 1843)	Acrididae	Painted Grasshopper	I	+	+	+
21.	*Danaus chrysippus* (Linnaeus, 1758)	Nymphalidae	Plain Tiger	Bu	+	--	+
22.	*Dendrocitta vagabunda* (Latham, 1790)	Corvidae	Rufous Treepie	B	+	+	+
23.	*Dendrocitta vagabunda* (Latham, 1790)	Dicruridae	Grey or Ashy Drongo	B	+	+	+
24.	*Egretta garzetta* (Linnaeus, 1766).	Ardeidae	Little Egret	B	+	-	+
25.	*Eudynamys scolopacea* (Linnaeus, 1758).	Cuculidae	Indian Koel	B	+	+	+
26.	*Eurema hecabe* (Linnaeus, 1758).	Pieridae	Common Grass Yellow	Bu	+	--	+
27.	*Francolinus francolinus* (Linnaeus, 1766).	Phasianidae	Indian Black Partridge	B	+	+	+
28.	*Francolinus pondicerianus interpositus* (Hartert, 1917)	Phasianidae	North Indian Grey Partridge	B	+	+	+
29.	*Funambulus palmarum* (Linnaeus, 1766)	Sciuridae	Northern palm squirrel	M	+	+	+
30.	*Gymnoris xanthocollis* (E. Burton, 1838)	Passridae	Yellow throated sparrow	B	+	-	+
31.	*Halcyon smyrnensis* (Linnaeus, 1758).	Alcedinidad	White throated king fisher	B	+	+	+
32.	*Hemidactylus frenatus* (Duméril & Bibron, 1836)	Gekkonidae	Common House Gecko	R	+	+	+
33.	*Herpestes edwardsi* (É. Geoffroy Saint-Hilaire, 1818).	Herpestidae	Indian Gray Mongoose	M	+	+	+
34.	*Himantopus himantopus* (Linnaeus, 1758).	Recurvirostridae	Black winged Stilt	B	+	-	+
35.	*Jynx torquilla* (Linnaeus, 1758)	Picidae	Eurasian wryneck	B	-	-	+
36.	*Lepus nigricollis* (F. Cuvier, 1823)	Leporidae	Saha	M	+	+	+
37.	*Merops orientalis* (Latham, 1801)	Meropidae	Green Bee-Eater	B	+	-	+
38.	*Merops superciliosus* (Linnaeus, 1766)	Coraciidae	Indian Roller	B	+	-	+
39.	*Naja naja* (Linnaeus, 1758)	Elapidae	Naag	R	+	+	+
40.	*Nycticorax nycticorax* (Linnaeus, 1758)	Ardeidae	Night Heron	B	-	-	+
41.	*Passer domesticus* (Linnaeus, 1758)	Passeridae	House sparrow	B	+	+	+
42.	*Pavo cristatus* (Linnaeus, 1758)	Phasianidae	Indian Pea Fowl	B	+	+	+
43.	*Phalacrocorax niger* (Vieillot, 1817).	Phalacrocoracidae	Little Cormorant	B	+	-	+
44.	*Psittacula eupatria* (Linnaeus, C 1766)	Psittaculidae	Alexandrine Parakeet	B	+	+	+
45.	Psittacula krameri borealis (Neumann 1915)	Psittaculidae	Northern Roseringed Parakeet	B	+	+	+
46.	Pycnonotus cafer (Linnaeus, C 1766)	Passerines	Red Vented Bulbul	B	+	+	+
47.	*Pycnonotus leucotis subsp. mesopotamia*) Ticehurst, 1918)	Pycnonotidae	White eared Bulbul	B	+	-	+
48.	*Saxicola ferrea* (J. E. Gray & G. R. Gray, 1847)	Muscicapidae	Grey Bushchat	B	+	+	+
49.	*Streptopelia decaocto* (Frivaldszky, 1838)	Columbidae	Indian Ring Dove	B	-	-	+
50.	*Streptopelia chinensis* (Scopoli, 1786)	Columbidae	Indian Spotted Dove	B	+	-	+
51.	*Tachybaptus ruficollis* (Pallas, 1764).	Podicipedidae	Little Grebe	B	-	-	+
52.	*Treron phoenicoptera* (Latham, 1790).	Columbidae	Yellow Footed Green Pigeon	B	+	+	+
53.	*Tringa hypoleucos* (Linnaeus, 1758)	Scolopacidae	Common Sandpiper	B	-	-	+

54.	*Turdoides caudatus* (Dumont, 1823).	Leiothrichidae	Common Babbler	B	+	+	+
55.	*Upupa epops* (Linnaeus, 1758)	Upupidae	European Hoopoe	B	+	+	+
56.	*Vanellus indicus* (Boddaert, 1783).	Charadriidae	Red- wattled Lapwing	B	+	+	+

B= Birds; Butterflies = Bu; I= Insect; M; Mammal; R = Reptiles; A= Bir Ghugiana ; B= Bir Chahal ; C= Bir Sikhanwala

Table 4: List of number of faunal families with genera and species

S. No.	Family	Genera	Species
1.	Accipitridae	1	1
2.	Alcedinidad	1	1
3.	Acrididae	1	1
4.	Agamidae	1	1
5.	Anatidae	1	1
6.	Apidae	1	1
7.	Ardeidae	5	8
8.	Bovidae	1	1
9.	Canidae	1	1
10.	Cicadidae	1	1
11.	Charadriidae	1	1
12.	Columbidae	2	4
13.	Coraciidae	1	1
14.	Corvidae	1	1
15.	Cuculidae	2	2
16.	Dicruridae	1	1
17.	Elapidae	1	1
18.	Gekkonidae	1	1
19.	Herpestidae	1	1
20.	Leiothrichidae	2	2
21.	Leporidae	1	1
22.	Meropidae	1	1
23.	Muscicapidae	2	2
24.	Nymphalidae	1	1
25.	Passeridae	2	2
26.	Passerines	1	1
27.	Phalacrocoracidae	1	1
28.	Phasianidae	2	3
29.	Picidae	1	1
30.	Pieridae	1	1
31.	Podicipedidae	1	1
32.	Psittaculidae	1	2
33.	Pycnonotidae	1	1
34.	Rallidae	1	1
35.	Recurvirostridae	1	1
36.	Sciuridae	1	1
37.	Scolopacidae	1	1
38.	Strigidae	1	1
39.	Upupidae	1	1
	Total	49	56

Conclusion

Present study provides information about the floral diversity (angiosperm, gymnosperm and pteridopytes) and faunal diversity of the region. This information is also informs about the threatened or extinction nature of flora and fauna.

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